

Applicants respectfully direct the Examiner to the amendments above and assert that for the reasons listed below, the application is novel and unobvious.

### **Instant Invention**

The instant application discloses absorbent material having substantially improved structural stability in the dry and wet states. The absorbent materials are significantly less susceptible to handling losses of absorbent gelling particles during manufacturing operations. The absorbent material also is not subject to shifting of the absorbent gelling materials during or after swelling by fluids. The absorbent material comprises absorbent gelling particles comprising: (a) water insoluble absorbent hydrogel forming polymer; (b) polycationic polymer bonded to the absorbent gelling particles at the surface thereof (c) glue microfibers dispersed in the absorbent gelling particles; and (d) a carrier layer bonded to the absorbent gelling particles through the glue microfibers. The invention further relates to absorbent articles comprising the absorbent material.

### **US 5,849,405 (Wang)**

An absorbent material comprising a mixture of (1) a plurality of absorbent gelling particles comprising a water-insoluble, water-swellaable polymer, and (2) an absorbent property modification polymer reactive with at least one component included in a urine. When a urine is applied to the absorbent material, the absorbent gelling particles are spontaneously connective through the absorbent property modification polymer.

### **US 4,468,428 (Early)**

This citation discloses fibrous absorbent webs having a low density (about  $0.01 \text{ g/cm}^3$  to about  $0.15 \text{ g/cm}^3$ ) and comprising at least about 50% hydrophilic microfibers, such as cellulose microfibers, having a diameter of from about 0.01 microns to about 15 microns.

### **Discussion**

The Examiner asserts that the only difference between the instant application and Wang resides in the fact that Wang "fails to specifically teach the use of microfibers as the glue of binder to carry out said attachment." He further states that Wang discloses absorbent particles attached to a carrier layer as well as the use of a glue or binder bonded to said particles.

However, an examination of Wang at column 13, lines 30-36 (referred to by the Examiner), reveals that the terms "glue" and "binders" are merely two members of a "laundry list" of possible additives. There is no contemplation that the glue or binders are used to attach the absorbent gelling materials to a carrier layer as in the instant application. Even if one of skill in the art, based on the second portion of Wang which is relied upon by the Examiner (column 16, lines 40-45) **extrapolated** that the reference to glue and binders referred specifically to binding of the absorbent gelling particles to the "substrate layer", there is no contemplation that microfibers could be utilized as the glue or binder material.

The Examiner then wishes to combine the teaches of Early with those of the Wang patent. However, the microfibers of Early are utilized as absorbent materials themselves, rather than in any binding capacity. There is no contemplation in Early of the use of absorbent gelling materials. Additionally, the instant microfibers are **required** to be manufactured such that they are tacky. There is no contemplation in the Early patent of treatment of microfibers to make them tacky. Therefore, the microfibers of Early, even if they were introduced into the articles produced by the Wang patent (or the instant application) **would not perform in the manner required.**

The Examiner contends that Early teaches the utilization of thermoplastic elastic, meltblown microfibers as bonding agents. In fact, Early states "Web strength of the web may be increased by heat fusion, whereby the web is heated to a temperature at which the fibers become soft. But Early is referring to all the fibers not merely the microfibers and the instant articles do not possess increased web strength, but rather result in a web in which the absorbent gelling materials are maintained in a fixed location such that the absorbent capacity is maintained at an even level throughout the desired portions of the absorbent article.

Finally, the Early patent does not contemplate the use of absorbent gelling materials. There would have been no motivation to combine the microfibers of Early with the absorbent gelling materials of Wang, even if such a combination would have been effective, which it would not.

If one of skill in the art were to combine the teachings of Early and Wang in order to produce an absorbent article, the article produced would have an absorbent core comprising at least 50% microfibers (Early). The article would also comprise absorbent gelling particles comprising a water-insoluble water-swellaable polymer and an absorbent property modification polymer reactive with at least one component included in urine (Wang). Further, according to Wang, the absorbent core **could** comprise a glue and that glue, **although such use is not contemplated in Wang**, might attach the water-insoluble water-

swellable polymer to the substrate material, including the microfibers. However, this Wang/Early absorbent core would not include the permanently tacky microfibers of the instant application, merely microfibers which would be glued to the water-insoluble water-swellable polymer, by some other glue material, and to the other absorbent materials.

#### **US 5,645,542 (Anjur)**

This citation discloses an elastomeric absorbent structure containing wettable staple fiber and thermoplastic elastomeric fiber. The Examiner states: "Anjur's patent is concerned with the creation of an absorbent material suitable for use as a diaper...Anjur teaches the use of said material comprising styrene-isoprene-styrene fibers...It would have been obvious to a person of ordinary skill in the art to combine the styrene-isoprene-styrene fibers taught by Anjur with the absorbent combination Wang and Early. Such a combination would have been motivated by the reasoned expectation of providing the absorbent combination of Wang and Early with improved elastic properties, which would increase comfort to the wearer."

#### **Discussion**

Anjur does list styrene-isoprene-styrene fibers as suitable for use in the cited absorbent structure. However, these fibers are not microfibers nor have they been subjected to treatment to render them tacky so that they attach to the water absorbent hydrogel forming polymer. If the styrene-isoprene-styrene fibers of Anjur were included in the hypothetical Wang/Early article described above, they would not function as do the instant microfibers.

Therefore the article produced from such use would not be that of the instant article nor would one of skill in the art be motivated by a reading of Anjur to 1) choose the styrene-isoprene-styrene fibers from the laundry list provided, 2) reform the styrene-isoprene-styrene material into microfibers and 3) treat the microfibers produced to render them permanently tacky. Additionally, there is no contemplation of the problems related to inclusion of hydrogel materials in absorbent articles in the cited patent which might cause one of skill in the art to utilize the styrene-isoprene-styrene materials in combination with hydrogels.

#### **OTHER**

For the foregoing reasons, Applicants respectfully submit that the Claims as amended are allowable over the prior art relied upon by the Examiner. Accordingly, favorable reconsideration of Claims 1, 3-5, 7-10, 13-15, 17-19, and 21-22 is earnestly solicited in the form of a Notice of allowance.

Claims 10, 11, 12, and 13 have been amended to correct an error made during translation of this application from Japanese to English.

Should any issues regarding this Application remain unresolved, the Examiner is encouraged to contact the undersigned by telephone at the earliest possible date to achieve a timely resolution.

**CONCLUSION**

Based on the above remarks, Applicant respectfully requests that the examiner withdraw his claim rejections under 35 U.S.C. 103.

Respectfully submitted,

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